

macdonald **FARM** journal



Special Woodlot Issue

★ 4 WOODLOT
FEATURES

★ SWINE
NUTRITION

★ ROYAL '66



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WALKER RILEY, B.S.A.
Macdonald College

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Advertising Manager
R. J. COOKE

Advertising Sales
LANCE LERAY

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OUR COVER: In the Morgan Arboretum, three levels of woodlot management are under study as they might be practiced by owners with different income requirements — clear cutting for rapid returns, diameter limit cutting for pulpwood and sawlogs, and single tree selection to produce veneer and sawlogs. In this photo, the tubular steel dray developed at the College is in use to draw pulpwood harvested from the diameter limit cut.



INSIDE

THE EDITOR'S COLUMN

Guest editorial

by

A.R.C. Jones,

Chairman,

Department of

Woodlot Management

A team approach to resource management . . .

SINCE THE TURN of the century two of the primary resources in Canada and the industries based on them, agriculture and forestry, have operated on their own — very much in a vacuum — almost oblivious of what is happening in the other resource sector of the economy. This single-mindedness can be partly attributed to where these landbased resources are located. The seven percent of the land area used for agriculture in Canada is spread across the country in a ribbon development above the international boundary. The forest resource lies to the north of this agricultural and settled land. Another reason for his "cast-iron" mindedness is related to the parochial attitude taken by agriculturalists and foresters to their opposite numbers and the resources with which they are concerned. If we are to be worthy custodians of our resource heritage, **THIS ATTITUDE HAS GOT TO CHANGE.**

The agriculturalist is aware that many serious errors in land-use and settlement have been perpetrated over the past fifty years. These land-use errors are now being turned over to the forester to correct. In most cases they are costly and time-consuming to repair, if not already too late. For his part, the forester must use land much more efficiently than he has done in the past. He must be able to justify the use of land for forestry in the face of stiff competition from other uses, such as agriculture, tourism and urbanization.

All about us are examples of the changing resource picture, of the interdependence and overlap of the important renewable resources. Other land-uses such as parkland, wildlife reserves, outdoor recreation, and above all, urban sprawl, compete with these two vital areas for food and fibre production.

In marginal farming areas, there are few alternatives to woodlot or woods work if the residents are to continue to exist in the fringe areas where year-round tourism or other employment opportunities have not developed. Speak to individuals in the marginal farming areas of the Laurentians, the Eastern Townships, the Lake St. John area, the Gaspé, northern New Brunswick or Nova Scotia, and you will find that a substantial portion of their meagre annual income is provided from working their woodlot or from industrial woods work if their woodlot no longer exists. These areas must be developed by careful, long-term planning primarily for forestry purposes. Because of the depleted (cut-over) condition of the land in these regions, it will take at least 30 or more years before the majority of these lands can support private forest farming in an intensive manner. In that time a substantial exodus of the existing population will have occurred because of the bare subsistence living conditions.

In the better farming districts also the woodlot has real economic importance but competes with better-earning agricultural enterprises where the farmer receives assistance in every other crop as well as every species of animal. Because of lack of interest and attention, lack of professional advice, and lack of research the woodlot is suffering from abusive treatment and an antiquated attitude to its long-term income potential.

The forest industry is looking more and more to the farm woodlot and private forests for its readily accessible supply of quality wood products as well as pulpwood. As prices increase the woodlot will suffer irreparable damage, for the next generation at least, if these growing demands for wood products are not accompanied by intelligent management advice and sound land-use planning for forestry as well as for agriculture in the farming regions of Canada.

None of these changes can take effect overnight, but if we are to begin to plan at all a supply of broadly-trained manpower is absolutely essential. Everywhere now one

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The farm Woodlot – Who owns it ?

by RICHARD A. LORD*

"Few woodlot owners consider the woodlot an important or integral part of their property. The majority of woodlot harvests are unplanned. Little consideration is given to sustained yield or to future production. Clear-cutting, high-grading and pasturing are common. These detrimental practices combine to reduce the owners' chances to gain any continuing benefits from their woodlots. They are at once, the result and the cause of widespread disinterest in a potentially valuable resource."

This quotation is taken from a recent study of small woodlot ownership and management in Soulanges and Huntingdon counties. The study examined the relationship between the woodlot ownership pattern and the management practices of the owners. The 18 month study, financed under the Extra-Mural Research Programme of the Department of Forestry, Ottawa, was conducted by the Department of Woodlot Management at Macdonald College.

The survey was concerned more with the forest owner than with the property owned. It attempted to learn who these owners are, how they differ from or resemble each other in their woodlot management, and why they follow their present practices. By identifying these relationships two aims are satisfied. First, the study indicates where, and what form of, woodlot improvement programmes will meet the needs, capabilities and interests of the owners. Second, important factors requiring further study are determined.

Soulanges and Huntingdon counties were selected as being characteristic of two differing rural situations, both typical of much of southwestern Quebec. The counties differ considerably in the extent, nature and distribution of the forest land, in the ownership pattern, and in the attitudes and practices of the owners. Soulanges represents the more sparsely forested counties. The woodlots are typically small and scattered, few in number and of only minor importance as a source of products and income. Huntingdon is more heavily wooded. The woodlots

The most accessible part of our national forestry resource lies in the hands of private owners in agricultural areas. Why the indifference and how to stimulate interest have long been open questions. The results of this survey, the first of its kind in Canada, provides data for decision by municipal and government bodies. A summary is presented here ; the full report is available.



Many farm woodlots can be developed to yield the equivalent of a cord of high quality wood products per acre per year as well as by-product fuel and pulpwood.

are more numerous, larger, and reflect a higher degree of utilization. These differences are reflected in the relative potential for improved management of the woodlands in the two counties, and for increased income for the owners.

Approximately 200 owners in each county were interviewed and their responses to a variety of questions obtained. In addition many of the owners' woodlots were inspected. Factors such as species, age and vigour of the trees, rate of growth, volume per acre, cutting practices, and the extent of grazing were determined. These data were then transferred to I.B.M. punch cards for analysis.

The Forest Resource

Total woodland area in the two counties is nearly 49,000 acres. As indicated in Table 1, most of this acreage is located in Huntingdon where, as a result, the woodlots are of greater economic importance. Woodlots in that county make up a larger portion of the owners' total land holdings. Forty-eight percent of the woodlot owners compared with only twenty percent in Soulanges, have more than one-quarter of their land under forest cover. Many of the larger woodlots are owned by non-residents.

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* Richard A. Lord is Research Assistant with the Dept. of Woodlot Management, Macdonald College, P.Q.

Maple research — A progress report

New tricks are bringing new life to an old industry. While much of the data given here is still not conclusive, we feel our readers could profit from the trends indicated by the research at the Morgan Arboretum.

**by J. D. MacArthur,
Forester-In-Charge
Morgan Arboretum**

PERHAPS SOME maple sugar producers would rather not think about the 1965 season. At the Morgan Arboretum the big run in early March was nearly all missed too. We would have, if early tapping had not been in progress in preparation for demonstrations for MAPLE DAY held on March 11th at Macdonald. However, after the long cold spell in March, the sap did run again in April and the results from some of the experiments should be of interest to other producers. We expect then to have a marked effect on how our operation is run in future.

In brief, the results lead us to believe that in future we should;

- 1) always begin tapping by Febru-

ary 15 in the Montreal area regardless of the weather;

- 2) use taphole sanitization every year;
- 3) switch our whole operation to vacuum pumping as soon as possible. The first step may be to switch from buckets to gravity flow pipeline;
- 4) in all vacuum pumping installations use the 16-inch drop tubing and PFA pellets;
- 5) be very careful in the choice of vacuum pumping equipment;
- 6) continue to use the electric tree tapper to give it a rigorous test.

Taphole Sanitization

Are PFA taphole sanitization pellets really worth the trouble in Canada? This question has been under investigation for several years in the Morgan Arboretum and results in 1965 prove that pellets can be important — as far as sap yield per taphole goes, at least. This year an experiment was designed with 240 trees to compare yields from pelleted and unpelleted tapholes. Each tree had two taps — one with a PFA (Flomor) pellet, and one without. Yields were kept separate and PFA tapholes gave 50% more sap than the unpelleted tapholes (2.7 gallons versus 1.8 gallons). Pelleted tapholes made on March 9th were still running on May 1st — 7 weeks later — when most of the unpelleted taps had dried up. With the cost of pellets at 1 cent per tap, the 1965 increase in sap yield repaid the cost many times.

All seasons, let us hope, will not be like 1965, and pellets will not be effective every year. This has been found in a number of studies, but in most years they would probably have some good effects. A very small increase would cover costs and every so often there would be a real bonus. It seems quite likely that in the long run taphole sanitization should prove highly profitable.

Our results, and others from the U.S., suggest strongly that pellets allow early tapping without risking early

drying up of tapholes. Professor Marvin from the University of Vermont reported that tapholes made in December 1964 ran well in March 1965. One U.S. operator made syrup from December till the end of April — he put in new pellets in March. The importance of getting early runs, the better products made from early sap, and the possibility of labour-saving through early tapping when pipelines are used, all make pelleting an attractive idea. The 1965 season was an excellent example of a year when taphole sanitization could pay off handsomely.

One word of warning is necessary, however. Before using PFA the producer must consider his market. If he will sell all his sugar or syrup to private customers in Canada, or the United States, he has no problem. But, as of 1965, the Société Des Producteurs De Sucre D'Erable was not prepared to purchase PFA treated maple products. The reason given is that overseas markets that they wish to enter, are closed to PFA treated products.

Vacuum Pumping

This was the third year of testing tubing and pumps in a 425-tap grove. Results in the past were not satisfactory with yields much below those from tubing and buckets in our other groves. In 1965, however, the vacuum pumping installation gave 5.3 gallons per tap, or roughly double the yield from other installations. A number of changes had been made in the installation and while we do not know what effect each had, the combination seems to work well. First, the vacuum pump was relocated more centrally; second, all main lines were adjusted so that they sloped down to the pump, although only slightly; third, the old style Mapleflo system of installing feeder lines was changed to a Mapleflo 16-inch drop system, and finally, PFA pellets were inserted in all tapholes. This, we are convinced, is a winning combination. The PFA kept bacterial and fungal growth down in the taphole, the drops prevented any sap be-



An experimental vacuum sap pump developed at Macdonald College. When the spring-mounted vacuum tank on the stand is filled with sap, a switch is tripped and the tank empties by gravity.

ing re-absorbed by the trees, and the vacuum made it easier for sap to flow from the trees. Often during the 1965 season when there was no flow in any other grove, there was a steady flow of sap through the vacuum pump. It is notable that this happened in the grove that has always in the past been known as the "cold" grove and according to temperature records was cold again in 1965.

Types of Vacuum Pumps.

Two different types of pumps were used: 1) a commercial pump in which the sap passes through the pump after being drawn through the lines by vacuum created by the pump; and 2) a milking machine pump used to create a vacuum in a tank connected to the main line. The latter was developed by Professor Jim Cooper of the Department of Agricultural Engineering at Macdonald College, and has the advantage of not churning or heating the sap. This may be an important feature in maintaining sap quality.

The pumps seemed to be equally effective in bringing out sap, but were not in the same place with the Cooper pump perhaps at a disadvantage. Break-downs occurred during pumping making one important point quite clear. With a vacuum pump installation one feels extremely helpless and frustrated when the pump fails or work. Anyone contemplating using vacuum pumping should have an extremely reliable pump and motor, or be able to get repairs done immediately, or have a pump in reserve. However, it is expected that highly reliable and easily serviced equipment will soon become available.

Plastic Pipeline vs. Buckets

People often ask, "How do sap yields from plastic pipeline and buckets compare?" This question has not yet been definitely answered but we now have some data from two years' observations that are quite suggestive and interesting (Table 1).

TABLE 1
Sap yields in gallons per taphole from pipelines and buckets
1964 and 1965 results

	Gallons of sap per tap	
	Pipeline	Buckets
1964	5.0	4.3
1965	2.7	2.5

These results, from two very different seasons, suggest that pipeline yields are slightly better than bucket yields. Of course, there might be some evaporation from buckets, but we strongly suspect that yields from pipelines are at least as good as those from

buckets — **if the pipeline is properly installed.** Equal, or better, yields of cleaner sap are to be expected using pipeline properly and we plan to change over as rapidly as finances will permit to a 100 per cent plastic pipeline operation.



Arboretum foreman Bob Watson checks the fuel in a commercial sap pump.



Power tapping equipment is improving every year. Here the author tries out a battery-powered model.

Ream, Rinse, or Fresh Tap?

During the April 14th to 28th period a small test was made of taphole treatment to stimulate sap flow. Ten 2-tap trees were chosen on April 14th and 1) one tap was left untouched; 2) one was reamed out 1/16 of an inch larger; and 3) a fresh hole was bored in each tree. These trees were first tapped on March 10th. In another set of ten 2-tap trees in the same area, one tap in each tree was rinsed with a 1 to 10 solution of javex and water, the other left untouched, and a new tap was bored. Records of sap flow

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Planting trees on wet land

by J. D. MacARTHUR*



The marked improvement in survival and growth from ridge-planting is seen in the row of six-year-old spruce on the left. The right row was planted on wet, flat ground.

"That patch is too wet to cultivate and too poor to bother draining. I guess I'll plant trees on it." This is probably how the decision to plant trees on the farm is often reached. No serious farmer plants trees on agricultural land, but, if he does plant trees on land unsuited for cultivation, he wants them to grow well, naturally. However, if land is too wet for corn or oats there is a good chance that it may be too wet for most tree species as well. A failed, or stalled plantation means financial loss, plus frustration and embarrassment, for the owner. It is wasteful and gives reforestation a bad name. Consequently much time and effort is spent in the search for planting methods that will reduce risks of failure. This is all the more important because, in agricultural areas at least, problem land is usually the only type available for forest plantings.

An experiment, started in the Morgan Arboretum at Macdonald College in 1960, has shown one way of getting better survival and growth of trees planted on land that had proven ex-

Land too wet for agricultural crops may also be too wet for most tree species unless a special planting method is used.

tremely difficult to reforest by ordinary methods because of poor drainage. The results will be of interest to anyone with a similar wet land problem.

The land in question is a formerly cultivated field that had begun to grow up in birch, aspen, and willow scrub. It was cleared by bulldozing in 1955, ploughed, and then periodically disced to keep down vegetation until the experiment was started in 1960. The soil is a stone-free St. Amable loamy sand. Despite numerous old farm ditches running through the area drainage is very slow, being held back by a clay sub-soil. Especially in the spring and fall, but also during wet periods, water lies on the surface.

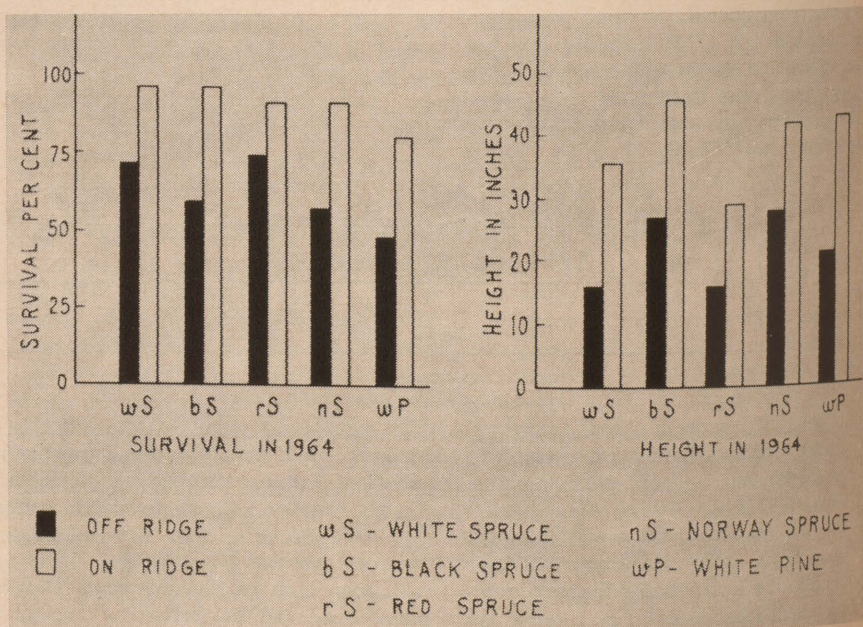
In the experiment five species of conifer (white, black, red, and Norway spruce and white pine) were planted on ridges made by ploughing two furrows back to back in the fall of 1959. Ridges were allowed to settle through the winter and trees were planted in the spring of 1960. At the same time parallel rows of trees were planted in the sod adjoining the ridges for comparison. The whole experiment

was laid out so comparisons of survival and growth on and off ridges could be made for all five species. Each autumn from 1960 to 1964 survival and height growth were recorded.

By 1964 it was clear that fewer trees died and growth in height was faster on the ridges than off. All five species gave similar results. Differences in survival and growth (Figs. 1 and 2) show how much better ridge planting was for all species. There were differences between species, however. Black spruce had the best combination of survival and growth with white and Norway spruce also fairly good. So far the two doubtful species are red spruce and white pine. Red spruce has survived well but grown slowly. White pine has grown well but losses, caused mainly by the white pine blister rust disease, are increasing. All in all, however, the method shows considerable promise.

Probably the main reason for success is that trees on ridges develop their root systems in better drained

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* J. D. MacArthur is Forester-in-charge, Morgan Arboretum, Macdonald College.

Wildlife and the farm

by J. R. BIDER*

There is every indication that hunting on private land will soon become a cash commodity. There are two alternatives how this enterprise might be developed.

AT THE 20TH annual convention of the Quebec Wildlife Federation held in Quebec City last November, there were indications of the important role the farms of Quebec might play in future conservation policy.

First, there was an air of sympathy toward the farmers with regard to trespass. The Stanstead County Fish and Game Club passed a resolution to ask the Quebec Wildlife Federation to request its legal advisor to make a survey of existing laws concerning this subject and to publish it in Federation News. The Montreal Anglers and Hunters Inc. also proposed that the following mention appear on the back of all hunting licences: "This permit does not convey any authority to go upon private land without permission of the owner". The fact that these motions were carried at least does mean that there are several thousand hunters in the province who are now fairly sympathetic to the farmers' cause.

Hunters are becoming more and more aware that the practice of controlled hunting is the only sensible way to manage some of the game species. Briefly this controlled hunting is the division of Crown public lands into little blocks of, for example, one square mile, in which Jones will be allowed to hunt the first week of the season, Brown the second week, Smith the third, etc. Once all the little blocks are filled, no one else is permitted to hunt in these areas.

The benefits of this type of hunting for those who get a block are great. In moose hunting there is anywhere from 90 to 95% hunting success over an indefinite period of time. The only thing that changes is the size of the boxes, smaller if game is a little more abundant, or larger if game is less abundant. This kind of management has proved successful for duck and deer hunting, and probably would

work well on any other small game although it has not been tried.

How does this affect the farmer? Well, it's simple. The farm lands out-produce the crown lands 5 to 1. The wildlife crop, on Crown land, is only secondary; very little if any effort is made to improve it. Therefore when all the little boxes are filled in controlled hunting Crown areas, the remaining good hunting will be on the farms. This has already happened in many areas of the United States, and as a result one of two alternatives have been put into practice.

First is the practice of hunting leases. In Texas, for instance, where only a small proportion of the land is public and trespass laws are uncompromising, hunting on private land is a business. Anybody who has lived in Texas for a couple of years as I have and has had that urge to hunt is very aware that a fence line, posted or not, is a dangerous boundary to cross. The trespass laws are so effective that many of the ranges are overpopulated by wildlife. Nobody would dare poach, not for fear of arrest and fines, but for fear of his life. This is a state which is less than half the size of Quebec and yet has a population which is about three times larger. For \$10 to \$15 a day, or \$100 a season, you can hunt deer on this private land. The law entitles you to two deer. Before you decide where you are going to do your hunting, you browse around going from one ranch to the next looking at deer signs and prospective areas which the rancher will show you. When you find a place where you think you will be able to bag a deer or two you pay a deposit and make your reservation.

The second alternative is incentive payments. Under the U.S. Food and Agriculture Act, incentive payments can be made to farmers and ranchers who agree to permit public hunting, fishing and trapping on contracted areas. The cost of conservation projects such as the construction of ponds or the improvement of wildlife habitat



on private land will also be shared by the government.

The idea of incentive payments is good, but I believe that under this type of agreement controlled hunting would have to be practised. But up to now the type of hunter that trespasses is an irresponsible sort of person who thinks he has a right to do what he pleases. In other words only a restricted number of hunters should be allowed on a farm at one time. Otherwise damage done by human erosion of farm land just by walking would not be covered by the incentive payments. At this point you might think I am being a little over-zealous, but during my travels visiting U.S. National monuments in the southwestern U.S. last summer, rangers at Organ Pipe, Canyon de Chelly, the Petrified Forest and Mesa Verde, all repeated the phrase: "Reduce human erosion, keep on the paths do not leave the paths, do not break branches of trees or pick flowers, do not move stones", and so on. Certainly as things are now, even with incentive payments, few people would like to have the average hunter hunting within range of his home.

This brings us to another phase of work being carried out by the Federation; insurance and education. The on a group hunters' insurance plan. They hope this plan will be in effect in the spring of 1967 at the latest. At this time, it is not clear what his insurance will cover, but aside from being a personal injury scheme, it seems it might also cover property damage. No one wishes to be involved in damage suits, but at least the fact that a man takes out insurance reminds him that accidents can happen and do happen. Because of an awareness of a need for training in the more careful use of firearms, the Montreal Anglers

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* Prof. J. R. Bider, Wildlife Biologist, Macdonald College.

NEWER CONCEPTS OF SWINE NUTRITION *



* Third in a series of articles by: Dr. L. E. Lloyd, chairman of the Department of Animal Science, from a paper given before the Canadian Society for Animal Production.

ANEMIA OCCURS invariably in young pigs if no supplemental iron is provided during the first few days after farrowing. It has long been considered practically impossible to provide this iron via mammary transfer, and until very recently, all efforts have been directed towards methods of administering iron directly to the young animal. The injection of iron dextran had become the favoured method until the 1963 report from the University of Kentucky that ferrous fumarate fed to brood sows to provide 600 mg. of iron per pound of ration at farrowing, and for the first three weeks of the suckling period, successfully prevented anemia in the pigs nursing the treated sows. These findings, confirmed at North Carolina, Cornell and Tennessee, plus the observations in radioactive studies that ferrous fumarate can be transferred via the mammary system, illustrate how easily conventional concepts can be disproved by research and how research can alter production practices.

The use of copper in improving rate of gain and feed conversion in swine is widely recommended in the United Kingdom. The success of copper in replacing the function of antibiotics has been sporadic in North American studies. In trying to explain this glaring discrepancy, current work at Macdonald College with early weaned pigs supports our original hypothesis that copper is less functional when added to rations high in soybean oilmeal.

Conventional concepts in nutrition must be constantly re-examined as research throws new light on old mysteries.

The recent work at Nappan, in which nicotine has been fed to pigs in order to stimulate the release of adrenalin in the body and hence improve feed conversion and carcass leanness, is an excellent example of the kind of research that will prove most profitable to the future of the swine industry.

Interrelationships between Nutrients

There is probably not a more important topic in nutrition than the consequence of nutrient interrelationships upon the requirements of animals for specific ration inclusions. Research-wise, we are in the midst of an era in which nutrient interrelationships are receiving an ever-increasing amount of attention, and the nutritionist is recognizing the extreme complexity of his task of determining truly meaningful requirement figures for the various nutrients that apply to the different animal species.

The problem of recognizing nutrient interrelationships in ration formulation is alleviated to some degree by the use of electronic data processing equipment. However, it must be kept in mind that the usefulness of the computer is restricted to the limits of the knowledge of its operators. The researcher must first determine the biological significance of specific nutrient minimums, maximums or absolute levels before the computer can be expected to carry out an effective service. The determination of such values is becoming increasingly difficult as each additional interrelationship between nutrients becomes known.

It would require practically a complete volume to discuss all nutrient interrelationships that might affect the formulation of balanced and hence efficient rations. Therefore, an attempt will be made to select only certain ones which currently are of particular interest, with the hope of emphasizing the type of problem encountered in formulation as a consequence of interdependence between nutrients.

The relationship between the fat level in the ration and the requirements for vitamin E is an interesting one. For example, it has been shown that all of the symptoms which can be directly related to a deficiency of this vitamin develop more quickly when a source of unsaturated fat is included in the ration, and that many will not develop in the absence of dietary fat. While there is a lack of agreement on the role of dietary fat in the absorption of vitamin A, it is well known that recognition must be taken of the absorbability of the fat and the presence of tocopherols and/or other antioxidants in the carrier in relation to the recommended levels of vitamin A.

There are well known areas in nutrition where calcium is being consumed in what would appear to be excessive amounts. For example, in poultry nutrition, levels of 5% calcium have been recommended for layer rations, even though optimum egg shell formation can be accomplished with less than 4% calcium in the ration.

Calcium is indeed an indispensable nutrient and for years a primary responsibility of the nutritionist was to ensure that it was present in all rations in liberal amounts. However, some recent findings have tended to point to calcium as an enigma in ration formulation. It may be worthwhile considering very briefly some of the considerations that may force us to conclude that the maximum level of calcium is not necessarily the optimum level under all conditions.

First, the interference by calcium with the utilization of certain trace elements must be considered. The story behind swine parakeratosis has illustrated calcium interferes in some way with the utilization of zinc, and a parallel has been drawn between this and the aggravation by calcium of manganese deficiency symptoms in poultry. More recently, it has been shown that calcium has an inhibiting effect upon

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ROYAL '66 — Roads to the Future

by Robert Hamilton*

"I knew there were chicken broilers but rabbit broilers. ! That's a new one on me!" This was a visitor's comment as he looked over the Animal Science display at last year's Macdonald College Royal. This exhibit was just one of many — Agronomy, Engineering, Bacteriology, Chemistry, Woodlot Management, Audiovisual Aids for the classroom, to mention only a few. For the women, the Home Economics displays of science being applied to everyday living was of particular interest. The modern kitchen facilities that included such features as an electric oven was a centre of attraction.

For the high school students there was Career Guidance. A room was arranged where students could discuss with some of the professors, the entrance requirements and courses offered in Agriculture, Home Economics and in Education, at Macdonald.

This is what Royal '65 was like. But what is in store for Royal '66?

Although the 1966 Macdonald College Royal will have the same basic structure, several major changes are being introduced. The most notable of these is in the livestock show. This year a preliminary showing will be held on Saturday, February 19th, from 10 a.m. to 5 p.m. At this time the various classes will be judged. The First and Second place winners of this preliminary show will go on to compete for the Grand Champion showmanship on the day of the Royal, February 25th, from 9 a.m. to 12 noon.

The second innovation is the extension of the closing until 9 p.m. This change will allow more people to see the Royal to find out what Macdonald College is doing in training young people for business, research and teaching. Also, changed for 1966, is the time of

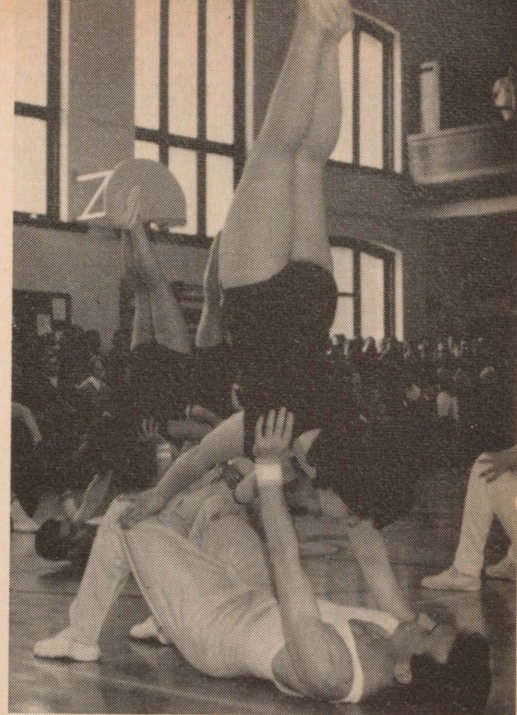
the Official Opening. This year Royal '66 will be officially open at 1 p.m. by Dr. Wm. Jenkins, Principal of the Nova Scotia Agricultural College, Truro.

To bring Royal '66 to a suitable close, there will be the Green and Gold Revue. This year's production, "Once Upon a Campus", will complete the overall picture being presented to you by the Royal. At 8 p.m., the curtain will rise to reveal in a light-hearted way one more aspect of the College — the social scene.

Therefore, make a resolution to attend the 19th Annual Macdonald College Royal. We promise there will be something of interest for all as we show you "Roads to the Future".

PROGRAM — MACDONALD COLLEGE ROYAL '66

- 9:00 a.m.: Opening of Livestock Show, Livestock Pavilion
- 10:00: Welcome to High School Students, Assembly Hall
- 10:45: Champion Livestock Showman Competition, Livestock Pavilion
- 11:00 — 2:30 p.m., and 7:30 p.m.: Square Dance Competition, Stewart Hall Gym
- 11:00 — 2:30 p.m., and 7:30 p.m.: Physical Education Display, Stewart Hall Gym
- 11:00 — 3:30 p.m., and 7:30 p.m.: Food Demonstration, Main Bldg.
- 11:30 a.m. — 1:30 p.m.: Dinner, Dining Hall, Stewart Hall
- 1:00 p.m.: Official Opening, Crowning of Queen, and Announcement of Winning Booth, Assembly Hall
- 2:00 — and 3:15 p.m.: Fashion Show, Assembly Hall
- 2:30 — and 4:30 p.m.: Royal Tea, New Dining Hall
- 4:30 — and 8:30 p.m.: Green and Gold Revue, Assembly Hall
- 5:00 — and 6:15 p.m.: Supper, Dining Hall, Stewart Hall
- 7:00: Presenting of Awards, Assembly Hall
- 9:00: Closing of Display



The gym display by the physical education students never fails to draw a large audience.



For the ladies — the fashion show, based on the theme "yesterday, today, tomorrow".



No event is complete without its Royalty — Royal Queen '65 and Princesses.

College Royal's first Grand Champion show-woman, Miss Jo-Ann Merrill.



* Robert (Bob) Hamilton, 4th year student in Agriculture, is Director of Publicity for Macdonald College Royal '66.

THE FARM WOODLOT

(Continued)

The two counties are located in the same forest region. The principal species are the maples, beech, elm and basswood, with some oak, white and black ash, and the birches. Conifers are less common in Soulanges where the general range of species is narrower.

Mature forest cover survives on few of the woodlots with the exception of some of the sugar maple groves in Huntingdon. Woodlots in Huntingdon are generally better stocked, and more productive than those in Soulanges. Extensive areas of waste, scrub forest and swamp are common in both study areas.

Many of the woodlots in both counties have been seriously depleted by high-grading, or have suffered from the effects of continual neglect. Heavier and more frequent cuttings in Soulanges in the past has left little mature timber, and vast areas stocked with less desirable species. In places, stands of potential crop trees have become overcrowded and stagnant due to a lack of cutting. Nineteen percent of all woodlot owners have clear-cut all or part of their woodlot in recent years.

As a result of these practices only low quality hardwoods for fuel and pulpwood are still available in quantity. The volume of timber of sawlog

size is limited, and generally of poor quality.

Ownership pattern

Different groups of owners differ in their attitudes toward their forest property. For this reason the study attempted to define the ownership pattern in terms of a number of owner characteristics.

In both counties most woodlots are held as part of a farm property. Many of these farms are either no longer active or have been converted to other uses. Agriculture is the principal objective of 83 percent of the properties considered in Soulanges, and of 71 percent in Huntingdon. Many owners consider farming as secondary in importance to other forms of employment. Only 60 percent in Soulanges, and 56 percent in Huntingdon list their occupation as farmers.

Non-resident ownership is becoming more common, particularly in Huntingdon. Only 80 percent of the owners reside on or near their property. Tenure is less stable in Huntingdon, where 21 percent of the woodlot owners have acquired their property within the last five years. The percentage of farmers having had some formal agricultural training is higher in Huntingdon.

Rural properties are most frequently managed by the resident owner. Few owners have found it necessary to hire any full-time help, although many em-

ploy seasonal workers at some time during the year.

Sources of income vary considerably. A higher percentage of the Huntingdon owners earn more of their income from non-agricultural pursuits. Many are completely independent of the farm as a source of income. The number of owners earning incomes from their woodlots, most frequently from their sugar bush is higher in Huntingdon.

Ownership attitude and practices

Few owners consider the sale of forest products as the principal benefit of ownership. Potential real estate value, and an interest in saving the woodlot as a source of security are more important considerations to many owners in both counties. The use of woodlands for outdoor recreational pursuits such as hunting, hiking and skiing is becoming more popular, especially in Huntingdon.

Three-quarters of the woodlot owners regularly harvest woodlot products for their own consumption. Firewood is the most frequent, and often the only product cut. Maple products, sawlogs and fence posts are harvested regularly by a number of owners particularly in Huntingdon. Only ten percent of the owners in Soulanges, and fifteen percent in Huntingdon make frequent sales of forest products. Approximately half the owners never market any products from their woodlots.

Other than firewood, maple syrup is the most important product harvested. It is the principal product sold. The percentage of owners producing syrup in Huntingdon is higher than in Soulanges and the quantity is considerably greater. The maple bushes are generally larger and better managed. In many cases they provide a considerable portion of the owners' total income. Sawlog and pulpwood sales are of only secondary importance. Cutting rights have been sold on at least one occasion by thirty-six percent of the owners in Soulanges, and by twenty-seven percent of those in Huntingdon.

Frequency of cutting is most often restricted by lack of merchantable wood and by the high cost and scarcity of labour. For these reasons many owners consider the marketing of wood unprofitable. They choose either to liquidate by clear-cutting, or to restrict all cutting and preserve the wood for the future.

Most owners do their own logging. Hired loggers, where employed, are seldom restricted, although a few owners will specify some diameter limit. Where cutting rights are sold they most often intend the removal of all timber on an area. Payment is invar-

(Continued on page 12)

TABLE 1
COMPARATIVE STATISTICS — SOULANGES AND HUNTINGDON COUNTIES

	Soulanges	Huntingdon
Total woodland area (acres)	8,100	40,500
Woodland area as percent of total area	9%	18%
Number of woodlots	308	800
Average woodlot size (acres)	26.6	50.7
Woodlots smaller than 30 acres	71%	41%
Woodlots larger than 130 acres	3%	11%
Woodlots comprising one-quarter or more of owners total holdings	20%	48%
Owners with less than five years tenure	10%	21%
Owners making regular sales of forest products	10%	15%
Owners never sell forest products	53%	41%
Owners have sold cutting rights	36%	27%

THE FAMILY FARM

PUBLISHED IN THE INTERESTS OF THE FARMERS OF THE PROVINCE

BY THE
QUEBEC DEPARTMENT OF AGRICULTURE AND COLONIZATION

Compiled by T. Pickup of the Information and Research Service,
Quebec Department of Agriculture and Colonization.

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Apples — 1965

PHOTOGRAPHS BY
OMER BEAUDOIN



ALUMINUM IN ACID SOILS IS TOXIC TO LEGUMES

A primary cause of failure in establishing legumes such as alfalfa and red clover on inadequately limed acid soils is the presence of the aluminum ion in a soluble form, reports Dr. L. B. MacLeod of CDA's experimental farm at Nappan, N.S.

There is aluminum in all mineral soils but only when it is in soluble form can it endanger crops. The amount of aluminum in any soil depends largely on the pH or acidity of the soil. Below a pH of 5, there may be enough soluble aluminum present to restrict root development in legume seedlings; a pH of 4.5 or below usually means there is enough aluminum to prevent all common forage legumes, and even barley from growing.

Greenhouse tests with nutrient solutions showed that the yield of both roots and tops of alfalfa and red clover was reduced by only one part per million (2 pounds per acre) of soluble aluminum. The presence of two parts per million (4 pounds per acre) restricted root growth almost entirely, the solu-

tion being toxic enough to prevent all common forage legumes and even barley from becoming established. If aluminum were present at this latter concentration in the soil solution it would also prevent roots from growing into the soil.

The pH of the surface soil can be readily increased by liming, and soil limed to a pH of 5.5 will have practically no soluble aluminum present.

Dr. MacLeod says it is, therefore, very important that acid soils be limed and fertilized before seeding to alfalfa, red clover or other forage legumes. Deep-rooted forage legumes may encounter high concentrations of soluble aluminum in the subsoil which will slow down or prevent root penetration in the search for water. Liming the surface soil, however, will greatly facilitate legume establishment and it should be the first step taken by a farmer wishing to increase his forage yields.

(Information Division, Canada Department of Agriculture)



Potatoes in flower on the farm of Mr. J. Savard at Peribonka in Roberval County.

PROGRESS OF THE MANICOUAGAN POTATO SEED STATION

The Manicouagan Elite Potato Seed Station is entering its fifth year of operation with confidence because the progress already made has been very encouraging: in 1961 the site was virgin bush and now (1965) there are more than 375 acres of cleared land.

The station has its own laboratory, a greenhouse, a potato storage, a shed for farm implements, and a large storage divided in two — one side for storing pallet boxes and the other separated into bins. This new storage is situated about four miles from the station and is used only for storing, grading and shipping elite seed potatoes. Entry of buyers and truckers on the station is thus avoided.

The station is well equipped with farm implements including the following: two-row cup-type potato planter, assisted-feed potato planter, sprayer, sprinkler irrigation system, roto-beater, one-row potato digger, twin-row digger, tractor-mounted bulk loader, and a bulk box unloading conveyor. The potato storage is equipped with an electric fork lift for pallet boxes, a pallet box filler and dumper, and automatic bin unloading.

As regards the production of elite seed potatoes, in 1964 a total of 20 acres were planted with eleven varieties in tuber units. The main varieties were Green Mountain, Keswick, Cherokee, Irish Cobbler, and Sebago. All varieties passed the three field inspections and were classed as Elite I, II, and III.

In the fall of 1964, a total of 3,283 seventy-five pound bags of Elite II and III were shipped to cooperative societies and individual growers (2,000 more bags than in 1963).

The number of tubers indexed in the greenhouse last winter exceeded 26,000 as compared with 9,000 the previous year. It is planned to index 45,000 tubers during the current winter in order to increase the production of Elite I and make it possible to deliver larger quantities of Elite II to coopera-

tives and growers in 1965-1966. With the generous collaboration of Dr MacLachlan and members of his staff, more than 5,400 smears have been prepared, stained and examined under the microscope for the purpose of detecting bacterial ring rot in potato tubers.

In addition, a laboratory has been organized at La Pocatière in which the following tests are being carried out: (1) Detection of leaf roll in potato tubers by means of resorcin blue and the stereoscopic lens (Igel-Lange test); (2) Detection of virus by inoculating leaves of *Solanum demissum* with juice from potato sprouts taken preferably at the seed end; (3) Detection of virus by serological methods.

Briefly, this is what is being done by those responsible for the Manicouagan Elite Potato Seed Station to improve the quality of our seed potatoes in close cooperation with the Seed Potato Certification schemes.

B. Baribeau

SPEEDIER SPREADING OF FERTILIZER

In New Zealand, where the use of aircraft to distribute fertilizers on hilly and inaccessible territory has already brought into production thousands of acres of valuable farmland, the demand for fertilizers applied from the air continues to increase as farm production targets rise. A new aircraft specifically designed for aerial fertilizer application — the PL 11 Air Truck — is now helping to meet this demand.

Designed and built in Te Kuiti by Waitomo Aviation Limited, the machine can carry a ton of fertilizer — more than twice as much as a conventional topdressing plane. It has twin tail booms that allow direct access to the hopper in the fuselage. Its rapid, easy loading combined with high carrying capacity give the Air Truck a distinct advantage over the aircraft normally used on fertilizer duties. One recent operation in Taranaki required only four hours to apply a quantity of fertilizer that would have needed a seven-hour stint with an ordinary plane. (From "New Scientist", Vol. 28, No. 473)

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

GLOW TO MEASURE BUTTER CONTENT

The measurement of the butter content of milk by chemical analysis is a long process and one which is consequently expensive. A technique developed by the Byelorussian Academy of Sciences will speed up this determination and also make it more accurate.

Butter has no physical characteristics which, when in milk, make it distinguishable from the milk itself. The approach by the Byelorussian scientists was to give the butter some artificial property. This they did by boiling the milk together with a specially developed dye and some alkali for three minutes. This was sufficient to give the milk a yellow-green luminescence. The intensity of the luminescence is an indication of the butter content of the milk.

A laboratory model of the luminescent "butter-meter" was able to measure the butter content to within 0.05 per cent in 3½ minutes. The new device is also being used to establish the oil content of oil bearing plants.

(From "New Scientist", Vol. 28, No. 474)

HUNGER SIGNS IN PLANTS

If plants could squeal like pigs when they were hungry, the world would be a very noisy place. Fortunately they have another way of showing their needs — by the colour of their leaves.

For instance, want of nitrogen is often shown by pale, yellowish-green foliage and by greatly diminished yield, especially in leafy crops such as hay and legumes. Lack of phosphorus is generally betrayed by reduced growth and, in serious cases, by a purplish coloration of the leaves, as for example in corn. Symptoms of potassium deficiency may be seen on the borders of leaves as a browning or yellowing or as pale spots.

Lack of minor elements may also appear. For instance, boron deficiency may be indicated in alfalfa by yellowing of the upper leaves; in turnips by the disorder known as brown heart; and in apples by "corky core". In these cases very small amounts of borax may be enough to correct the trouble. Minor elements can sometimes be supplied to plants by spraying their leaves with solutions of suitable compounds.

Knowledge of the chief symptoms of malnutrition in plants will help the farmer to apply the right fertilizers to his land and so obtain better yields.

These pages supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

BEEF CATTLE ROP PROGRAM

Part of the Hereford herd belonging to Mr. J. M. Tremblay at Grande-Baie, Chicoutimi.



Participation in the Federal-Provincial Record of Performance program for beef cattle increased 23.7 percent in 1964-65.

A total of 273 herds from eight provinces were involved with 8,906 calves being weighed.

Object of this ROP program is to find the best calves in each herd from the point of view of weight gained and utilization of feed consumed. For reporting purposes the groups are divided into three parts on the strength of their performance in the test. The top third are the best performers and will provide the best replacements for the herd. The bottom third should be culled from the breeding herd and the middle third should only be used for breeding if unavoidable.

Calves are weighed at weaning and again at the end of a feeding period of about 168 days. The rate of gain is calculated from this information.

In providing information on the performance of the calves, the test also gives a measure of the value of their sires and dams as breeding animals.

Officials of the CDA's Livestock Division point out that sound selection in tested herds is based on variation from the herd average and not proximity to maximum performance. To force calves to maximum gains on test may be injurious to eventual productivity.

However, breeders are advised against just roughing calves through the winter with little or no gain. While this may be practical and economically sound management, it does not permit

selection based on genetic ability to gain. To provide for this, gains should, on the average, be close to 2 lbs. per day for male calves and 1/5 of a lb. per day less for female calves.

In 1964-65, Saskatchewan had the most herds on test — 112; Alberta had 96; Manitoba 32; British Columbia 12; New Brunswick 9; Nova Scotia 9; P.E.I. 2 and Quebec 1. There were 177 Hereford herds involved in the program; 63 Aberdeen Angus; 22 Short-horn; 7 Galloway; 3 Charolais; and one cross-bred herd.

Organization and services required in the operation of the program are the responsibility of the provincial department of agriculture. Co-ordination, recording and reporting of results are the responsibilities of the federal department.

THE EFFECT OF WEATHER ON CROPS

The notion of a direct statistical correlation between the weather and crop yields was explored at the Rothamsted Experimental Station over 40 years ago by a promising mathematician, a newcomer to the staff called R. A. Fisher, but the inquiry never got very far. Agriculturalists soon realized that weather, like geography, is an overburdened port-manteau expression, useful only in general terms. The opinion today is that an investigation based on the dependence of yield on climatic factors is usually too complex to be described adequately by reliance on a few gross measurements of climatic variation, except perhaps when one factor dominates over all the others.

Nevertheless, statistical papers on weather and crop yield are still being written, some encouraged by the increasing availability of electronic computers.

During the course of his Middleton Memorial Lecture at Rothamsted this week, Dr. J. L. Monteith, of the Physics Department said bluntly that he believed statistics to be the wrong tool for exploring crop-weather relationship because, as he put it, "it attempts to by-pass the search for fundamental mechanisms and causes." These, of course, include photo-synthesis, leaf expansion and translocation, the movement of food material from part of the plant to another. At very high tem-

peratures, the inactivation of enzymes prevents the photochemical machinery from working properly and at low temperatures, the supply of carbon dioxide to the chlorophyll granules in the leaf cells is seriously restricted.

Recent research has shown that photo-synthesis at low temperatures can be greatly increased by treating plants with a chemical that makes leaf cells more permeable to carbon dioxide, a technique which may have important implications for agriculture in cold climates. There is evidence, too, that the burning of fossil fuels has increased the concentration of carbon dioxide from about 280 parts per million in the middle of the 19th century to about 314 ppm in the early nineteen sixties. Dr Monteith said that unless future fuel needs are met largely by the

(Please turn page)

development of nuclear power, the concentration is likely to rise to 400 ppm by the year 2000. He thought that by itself this change might be expected to increase crop yields by 10 to 20 per cent, but it was difficult to predict the effects of the likely changes in the weather.

After viewing all factors likely to be of significance throughout the whole growing season, Dr Monteith said that the yield of crop could be positively correlated with temperature during the period of leaf expansion and negatively correlated with temperature after flowering. Coolness seems to be much more important than rainfall although rainfall must not, of course, fall below a certain minimum. The effects of some experiments at Rothamsted were entirely consistent with these views, but in terms of cold statistics, the correlation of yield on temperature was not significant.

(From "New Scientist", Vol. 28, No. 473)

ARTIFICIAL INSEMINATION OF BEES

Under natural conditions bees mate while flying about 10 to 15 metres above the ground. One queen mates with a number of drones, preserving the sperm for several years in a slightly acid medium. The eggs are later fertilized from this long-term reservoir, making systematic genetic studies practically impossible. Efforts to mate the animals under controlled conditions, for example in closed rooms or even under physical restraint, led to no result.

It is, however, possible to inseminate queens artificially. The queen is fixed on to a micromanipulator and inactivated with carbon dioxide, and the sperm is injected into the oviducts through a small glass tube. The method was first developed in the United States. F. Ruttner of Oberursel, Taunus, West Germany, reports that using the sperm of a single drone he could obtain fertilized eggs for periods of up to 18 months.

Unfortunately only about 10 to 15 per cent of the sperm placed in the oviducts gets into the reservoir, or spermatheca (this is true also under natural conditions). A well-filled spermatheca containing 5 to 7 million spermatozoa is necessary to insure that all the eggs are fertilized, and this requires the use of 75 to 90 million spermatozoa (about 10 cu mm). A single drone cannot supply this quantity, so that the controlled laboratory rate of generation is limited (*Umschau*, 1965, No. 20, p., 649).

(From "New Scientist", Vol. 28, No. 473)

NEW BEEF CATTLE BREED

The "Luing" breed of cattle developed in Scotland has now been recognized as a distinct beef breed, following a prolonged study of production and performance. The breed was developed in hill farming conditions based on a Beef Shorthorn-Highland cross. The name is taken from the island of Luing, Argyll where the development work was carried out. Bulls of the new breed will become eligible for beef bull licenses. The first herdbook is expected to contain about 280 heifers and bulls and the first sale of the breed is planned for next March.

QUEBEC EXHIBITORS DO WELL AT TORONTO

Quebec potato growers who exhibited at the Toronto Royal Winter Fair in the fall were very successful. Three growers presented a total of nine entries all of which won awards.

Mr. Cyrias Desmeules of Kenogami came first in the seed potato class and first in the table potato class with the variety Teton. Mr. Albert Michaud of Saint-Paul-de-la-Croix won first prize in the seed class and fifth prize in the table class with Green Mountain. Mr. René Pedneault of Saint-Ambroise de Chicoutimi, showing Green Mountain, Keswick, and Norland placed third, fourth, and sixth in the seed class and sixth and eighth in the table class.

Quebec cattle breeders also did well at the Fair. R.R. Ness & Sons of Howick won the awards for Premier Breeder and Premier Ayrshire Exhibitor for the fourth year in succession. They also won the Adam Seitz Memorial Trophy and the Carnell Trophy. In the individual classes, they took one third prize, two fourth prizes, and two fifth prizes. Mr. Andrew Ness of Howick who showed Burnside Natricia Again took second prize in the class for three-year-olds.

Mr. Roger Beaudry of Granby won a first and a second prize, two trophies and a reserve championship. Mr. John MacFarlane of Philipsburg, who showed only one animal, won a third prize.

Mr. Roland Pigeon of Verchères took fourth prizes in the classes he entered for.

REPORT DUE ON CROP INSURANCE

Mr. Alcide Courcy, Quebec Minister of Agriculture and Colonization announced at the beginning of January

that his Department expects a report before the end of the month on the feasibility of establishing a crop insurance policy in the province.

A special committee of agricultural experts was formed several months ago by the government to study the question of crop insurance and determine whether it would be practical for Quebec at this time.

The minister said there is a good possibility that legislation on crop insurance may be presented at the coming session, which gets underway January 25.

Last summer, Quebec farmers suffered heavy losses in crop damage and demanded compensation from the government.

At present, the crop insurance scheme is in operation in Saskatchewan, Manitoba and Prince Edward Island.

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

MR. JOS. E. AUDET, DIRECTOR OF THE AGRICULTURAL ADVISERS SERVICE

Mr. J.E. Audet, the director of the Agricultural Advisers branch of the Department of Agriculture and Colonization, was born at Armagh in Bellechasse County in 1915. Following his classical studies at Bathurst, N.B., he obtained the degree of Bachelor of Agriculture Science from Laval University in 1938.

Mr. Audet has had lengthy experience in the field of agricultural extension. He held the position of agricultural representative in Dorchester County and in Abitibi West for fifteen years. He was inspector for the War-time Prices and Trade Board and supervisor for the administration of the Veterans' Land Act. He was also responsible for directing the Young Breeders' Clubs in Quebec for five years. He has been assistant director of the Extension Service since 1956 and, in this capacity, has lately been occupied with coordinating the work of the scientific and administrative personnel in agricultural information offices. He is a member of the "Corporation des Agronomes de la Province de Québec".

This page supplied in the interests of the Family Farm by the Quebec Department of Agriculture and Colonization.

Mr. L. Fortin of Baie-St-Paul in the county of Charlevoix raises turkeys as part of his farming operations.



POULTRY HINTS

It is always better to sell broiler chickens at the minimum weight required by the market.

The feeding of birds at the start of the laying period must be carefully watched. Too high a proportion of grain in the diet fattens the birds uselessly.

Wisely used credit makes it possible to increase means of production but unduly burdensome payments should not be undertaken.

The poultry-house must be disinfected to destroy lice and mites before birds are put into it in the fall.

It is advisable to treat pullets raised on range with a good vermifuge to rid them of intestinal worms.

Birds to be used to produce eggs for incubation should be fed a special

breeder ration to increase hatching percentage and viability of chicks and poults.

Do not endanger the health of the flock by using an inadequate remedy against a specific disease.

Wash drinking-fountains often because they are a common source of contamination.

Risk of vermin entering poultry-houses in the fall can be countered by the use of a good raticide.

APPLES - 1965

The Quebec Bureau of Statistics, Agriculture Section, publishes a final estimate of the apple crop in the Province of Quebec for the year 1965, by varieties and production centres. Also shown is the farm value of the 1964 crop.

The 1965 apple crop is estimated at 7,733,000 bushels, compared with 3,765,000 bushels in 1964, an increase of 105 per cent. Late varieties show a production of 7,048,000 bushels, for 91 per cent of the total, while early varieties, with 685,000 bushels, account for only 9 per cent. The 5,367,000 bushels of the McIntosh variety represent 69 per cent of the whole crop.

In 1965, apple trees showed heavy blossom and normal pollination. Due to a lack of warm weather and rain in July, growth was slow. However, rain-falls during the month of August ac-

celerated fruit development and cool nights favoured colouring.

The farm value of the apple crop was \$7,304,000, for an average price of \$1.94 per bushel in 1964, as compared to \$8,062,000 and an average price of \$1.52 in 1963. The value of the 1965 production will be published only next year, after the entire crop has been disposed of.

These data were compiled by the Quebec Apple Crop Estimating Committee. The Committee, which was formed in 1962, is composed of agronomes of the Quebec Department of Agriculture and of representatives of the Canada Department of Agriculture and the Quebec Bureau of Statistics.

The Quebec Bureau of Statistics, which supplies the Committee with basic data, was the first organization in Canada to try out an objective esti-

imating method which is used to arrive at official estimates.

This method consists in taking random samples from orchards, apple trees and branches. The apples on the sample trees are counted in mid-July and every tenth apple is labelled in order to assess the percentage of the drop. Later on, the labelled apples are measured at different stages of growth and the data thus obtained help to determine the average diameter of the apples at harvest time. Once the average net yields of the sample trees by variety have been established, these averages can be applied to the total number of bearing trees.

The estimates contained in this bulletin cover only commercial production, that is to say, produce intended for fresh marketing and processing.



THE BETTER IMPULSE . . .

News and Views of the Women's Institute of Quebec

IRELAND DAY AT THE A.C.W.W. CONFERENCE

At the Associated Countrywomen of the World Conference on Ireland Day, Mrs. Josephine McNeil was chosen to give the introduction to Ireland.

She stated that remembering the past is often regarded as one of the seven deadly sins of the Irish. She said that she was going to be guilty of this sin as she wanted any visitors who had Irish ancestors to know something of their heritage. She began with that ancient name, St. Patrick. She said it was true to say that modern Ireland began fifteen hundred years ago when Patrick came to bring the Christian message to Ireland.

It was his second coming to Ireland. He had first come as a boy of seventeen. He was a Roman from Britain, Britain being then under Roman occupation. On some Irish foray on the coast of Britain the youthful Patrick was taken prisoner, was brought to Ireland as a slave and made to herd swine on the mountain of Slemish in County Antrim. After five years he escaped, made his way back to Rome where he became in due course a priest, and eventually a bishop.

After his unhappy experience in Ireland, one would have thought he would never wish to hear of it again. However, she stated that the memory of Ireland became an obsession with him and he had written that he incessantly seemed to hear voices of the Irish ringing in his ears. He returned, she said, by his own choice to bring the Christian message to pagan Ireland. His task was more difficult because Ireland already had an organized social and political system and institutions.

It was a hierarchial, aristocratic system with a High King at the head and after him, the lesser kings and chieftains. It had a priestly caste, the Druids; it had a legal system, the native code of laws known as the Brehon Laws; it had also another caste, that of the professional poets or fili. Their business was to record the chief events of the times, and to praise and boost masters to whom they were attached. They were Ireland's first propagandists and historians and they enjoyed considerable influence.

"You will agree," she said, "it was a

formidable task to attempt to change these pagan people to Christian belief and practice." "Like a good strategist, St. Patrick began his work at the top, converting first the kings and chieftains and their royal sons and daughters. He used as his instrument the religious foundations or monasteries which he established in several places throughout the land. The first and greatest of these being at Armagh in Ulster. These monastic cities served as universities for the spread of learning and Christianity. Schools for artists and craftsmen, especially for goldsmiths and silversmiths (some of whose masterpieces may be seen in Irish museums today). Domestic arts and Agriculture were also taught.

St. Patrick brought with him from Rome copies of the Scriptures, the Gospels and the Psalters, and the artistic monks, in their writing rooms or Scriptoria, copied and illuminated the holy books of Scripture with an art so exquisite that they remain to this day one of the chief glories of Irish achievement. The Book of Kells, which you can see in Trinity College, is one of the greatest examples of their work.

This art of writing and illumination, the early Christian metal work (as seen in Ardagh Chalice, the Cross of Cong and the Tara Brooch, now in the National Museum; the distinctive architecture (Irish Romanesque) and the sculptured High Crosses, represent the native Irish contribution to the developing art of Western Europe up to the 12th century.

There seems to be in Ireland's destiny, she said, a pattern of emigration — the first and most fruitful, she thought to be that of the learned men of the monastic schools who went as missionaries to Europe from the 6th to the 8th centuries. She went on to say that they had come to the rescue of western civilization at a moment when it was in crucial danger. This period of intellectual and cultural exchange with Europe, she said, is what we refer to as our Golden Age.

She went on to tell how this Golden Age was disrupted by the invasion by the Vikings in the 9th century when books were burned and monasteries

and castles razed to the ground. The Norsemen dug themselves in near the river mouths where they first landed and where they built walled settlements in what are now the cities of Dublin, Waterford, Wexford, and Limerick, Ireland's first town.

This battle with the Norse invaders lasted for a century — until the Irish king Brian Boru defeated them decisively at the Battle of Clontarf. There was much intermarriage between these handsome Norsemen and the Irish ladies. It has been said, the Irish gave the Norsemen a black eye, but the Norsemen gave the Irish a lot of blue eyes.

She went on to say that the first invasion of Ireland by the English was by invitation. The English accepted the invitation and stayed seven hundred years. The fortunes of Ireland were perhaps at their lowest ebb in the 18th century and it was worsened by the potato failure in the 19th century — which also caused the greatest emigration. Ireland is proud of the contribution these emigrants have made, especially mentioning the man whose memory is loved and honored in all the world, that of John Fitzgerald Kennedy.

She welcomed all the delegates and went on to say that today Ireland is especially busy creating new industries in order to balance their economy, as it is no longer a country wholly dependent on agriculture, although it is still their greatest industry. The completion of rural electrification is one of their greatest advances. "Our policy," she said, "is to work toward a prosperity that will ensure a good living for all — thus the problem of emigration will be greatly reduced."

Yes, Ireland Day was one day every delegate will long remember. Presentations to winners of Essay and Song Competitions were made. The International Handicraft Exhibition was opened by the Prime Minister's wife, Mrs. Lemass. The Agricultural Cooperation Exhibition was also officially opened that day. A special Horse Show was arranged for us. This we shall never forget. It was a beautiful day

(Continued on page 21)

The Month With The W. I.

CHRISTMAS GAIETY was in evidence at all Branch meetings. Christmas parties were held, gifts were exchanged, Carols were sung, and stories told. "Giving" was the background for all projects with cheer boxes and cards for shut-ins, for the elderly and for the ill, with gifts for children, for patients or for friends, with contributions to many worthwhile causes or organizations, and the purchase of UNICEF cards.

ABITIBI EAST: MATAGAMI held Christmas party; packed hamper for needy family. MALARTIC held successful rummage sale; Mrs. Chartrand was winner of the Carving Board; homemade pot-holders demonstrated and then sold.

BONAVENTURE: BLACK CAPE held citizenship meeting which included an excellent discussion on "What I would like my neighbour to do for me, if I were a new resident"; W.I. members in Bridgnorth England requested correspondents, and chose Black Cape to write to by drawing a name from names of Institutes found in a Macdonald Journal recently sent to England — two members have agreed to write this English branch; contest — identify bird or fish; packed cheer boxes. CASCAPEDIA sent many greeting cards to shut-ins. MARCIL completed plans for serving soup at Shigiwake-Port Daniel school during winter months; held discussion on resolution re National Park in the County; members brought Christmas tree decorations for sale, with proceeds going to Thankfulness Fund for Northern W.I.'s. PORT DANIEL honoured two members with a Life Membership; with Marcil Branch, entertained teachers; held English-French Crossword Puzzle contest; cards sent to shut-ins. RESTIGOUCHE: Agriculture Convener told members how to store vegetables to keep them crisp; members urged to vote.

BROME: ABERCORN members brought cards to be sent to shut-ins; Miss Barbara Crittenden of Sutton High School won the bursary given by the branch for standing 2nd in Grade 11, to continue her education; Miss Kathleen Madden won the Home Economics Prize AUSTIN has rented 100 French books for their library; Mrs. H. Coates told of visiting a WI branch in B.C. while on holiday; discussion on sale of Community Hall; donations to Quebec Service Fund; to Children's Christmas Party; to High School cafeteria, and to Cecil Butters Home. KNOWLTON'S LANDING held very

successful sewing course at Pine Lodge; donated to Quebec Service Fund. SOUTH BOLTON members gave suggestions for making Christmas decorations; made up candy bags for preschool children; Christmas pudding donated by Mrs. Hill won my Mrs. E. Davies; donated to Quebec Service Fund; received \$100 grant from the Federal Government towards painting Club House and Centennial Project. SUTTON donated money to Flambeau Home for purchase of clothing; sent Christmas remembrances to elderly people in Rest Homes.

CHATEAUGUAY - HUNTINGDON: AUBREY-RIVERFIELD held pot-luck lunch; completed two quilts, one for Welcome Hall in Montreal, one for sale; donated to school hot lunches; mailed patterns to 5 Northern W.I. branches; sent toys to Lachine Children's Home; sent, a W.I. pin for remembrance to former member who has moved away. DUNDEE: each member gave a talk trying to sell a cleaning product; donated to Retarded Children's Class in Huntingdon; Christmas piano music enjoyed. FRANKLIN CENTRE held discussion and completed plans for Cooking Class for Grade 7; demonstration of centrepieces for Christmas table decorations; held successful card party; members visited the Shawinigan Water and Power Company plant in Valleyfield; heard Christmas story on Syrian Customs. HEMMINGFORD: Mrs. D. Laurie and Mrs. D. Woolley wrote and acted a play entitled "The Progress of Two Pilgrims, or How Two WI Publicity Conveners Got to Heaven"; held Christmas Cookie Contest; saw Quebec slides from the FWIC Panorama collection. HOWICK: demonstration of making of apple strudel by Mrs. H. Greig; held rolled cookie contest, with cookies then donated to Preston home. HUNTINGDON: Mrs. Middlemiss read a Christmas story; demonstration of a Christmas table centrepiece; decision made to simplify refreshments at meetings except for Christmas and summer picnic; sent gifts to shut-ins. ORMSTOWN read two Christmas stories and sang Christmas carols.

COMPTON: BURY held 100th Birthday Party for Mrs. Cora Austin; held paper drive; Christmas Superstitions were named in Roll Call. CANTERBURY sent a quilt and other gifts to St. Paul's Rest Home, and gifts to the Military Hospital. COOKSHIRE: reports were given on Junior Red Cross work by a local high school student, on the U.N. by citizenship and publici-

ty conveners; information given on the Gold Medal Award given by the Council of International Civil Aviation Organization (ICAO) to Sir William Hildred for outstanding contribution to development of civil aviation; Sir William and Lady Hildred have visited the Cookshire branch on several occasions; held jumbled word contest, using words pertaining to Christmas season; bought T.B. seals; 10 subscriptions to Federated News ordered. EAST CLIFTON entertained guest speakers, Mr. A. Patton and Mrs. W. McLeod of the Sawyerville High School staff who spoke on the "Workshop"; purchased T.B. seals, also books for the library and prizes given to Sawyerville school. SAWYERVILLE donated to CNIB; gifts sent to retarded children at Dixville Home; flowers sent to Miss Ida Mackay on the occasion of her 98th birthday; held annual Christmas party with invited guests, games played and a social evening enjoyed. SCOTSTOWN entertained high school teachers; donated to hot school lunches; Mrs. J. B. Scott showed slides of her trip to England and Switzerland; also slides of the unveiling of plaque at Dunham, July 1964; gifts sent to the Wales Home.

GATINEAU: AYLMER EAST celebrated their 40th Anniversary, with a dinner in Ottawa followed by their meeting; five charter members and six past-presidents were present; greetings from Mrs. Ellard given by Mrs. Taylor, from the Province, and by Mrs. Leach from the County; contest was the "Best Short Story of an Early Settler"; Miss Janet Riley read a paper on the Veteran's Memorial Book in the Parliament Buildings, Ottawa; donated to Quebec Service Fund, and to Canadian Legion. BRECKENRIDGE: each member brought a guest to the meeting; reading on "Etiquette for Canada's Flag". EARDLEY: readings by Mrs. E. Kennedy on Christmas Stockings, and "The Christmas Candle"; Mrs. R. Bronson read "The Truth about Santa Claus"; contests on Christmas, and scrambled foods in the kitchen; Christmas donation given by each member to the Quyon and District Disaster Fund, instead of exchange of gifts between members; donation to local community Santa Claus Parade. RUPERT have done extensive repair work at their WI Hall; cards sent to Shut-ins, and Christmas treat to elderly ladies at Morningside Home; roll call — "what we think of the latest dance". WRIGHT: Roll Call answered by bringing home-made Christmas decorations, which were then sent to

Morningside and Brookdale Homes; plant sent to oldest member who is in hospital; Christmas Tree held with Miss Eleanor Moodie acting as Santa; carol singing enjoyed.

MISSISQUOI : COWANSVILLE heard a talk on the "separateness" of Canadian provinces, due greatly to distances; a talk on the values of work; an article on adult Education Broadcasts for Northern Territories; donated to school for Retarded Children. DUNHAM held contest on Fruits and Vegetables, another pertaining to Christmas; donation sent to Northern Branches; cheer boxes and greeting cards sent to shut-ins. FORDYCE sent Christmas gifts to children in the far North, and money to Retarded Children's School and to the Children's Hospital; realized \$20 from sale of articles each made from one yard of cloth; chose cast for WI Play entitled "Diet Begins To-Morrow". STANDBRIDGE EAST: children's clothing made from donated remnants; contest held on parts of a turkey; two bees held to refurbish and to record a collection of dolls, furnishings and toys lent to the local museum for the summer; assistance given to teachers of Home Economics in local school given by several members.

PAPINEAU : LOCHABER produced a skit entitled "How to Conduct a Meeting", in which one of the characters was a fictional Mr. Grouch — greatly enjoyed by members and guests; Roll Calling one verse of a Christmas Carol; flowers sent to Senior members Christmas Eve, and gift to senior member's husband who has been hospitalized for some months.

PONTIAC : BRISTOL : Superintendent of Ade Memorial Hospital spoke on accidents in the home, their preventives and cures; sold Poppies and laid a wreath at the Bristol Cenotaph; CLARENDON members attended a meat clinic at IGA Store; auction sale of aprons with proceeds going to CNIB Hall. FORT COULONGE: reading on Remembrance Day; for roll call recited a portion of the collect; QUYON sponsored collection for UNICEF; placed wreath at War Memorial; gave prizes to 21 school children; donated to Pontiac Community Hospital. SHAWVILLE: each member named the farthest place she had been from Shawville; film shown on "Electricity and Its Uses; donation to Girl Guides; canvassed for CNIB. WYMAN had a special speaker who talked on "Lest We Forget"; roll call was how I observed Remembrance Day.

RICHMOND : DENNISON'S MILL brought jams and jellies for Wales

Home; cheque for Salada symbols given to Pennies for Friendship; placed wreath at cenotaph in Danville; Christmas cheer boxes sent to senior members of the community. GORE gave 2 magazine subscriptions to two teachers for use in their classrooms; for roll call gave a Christmas Verse or a Christmas Memory; gifts sent to children and to Veteran's Hospital. MELBOURNE RIDGE: first half of the members on the roll treated the other half to a hot dish supper; gifts and candy given to pre-school children. RICHMOND HILL surprised a member, Mrs. McIver with cards and gifts on her birthday; sent clothing to a children's home. RICHMOND HILL YOUNG WOMEN sponsored a course in First Aid which was very successful; 10 members completed the course and passed the examination; sunshine basket sent to member's child; enjoyed a potluck supper. SPOONER POND put their Salada Symbols cheque into Pennies for Friendship; gift sent to member's husband who has been ill; donated towards Christmas Party at the Wales Home; contest on a jumbled grocery list; held a sales table, with articles being auctioned by Mrs. Vigneault and bringing in a nice sum.

SHEFFORD : GRANBY HILL have found 2 plays and are reading them to choose the most suitable for the Drama Contest; held contest on Members in the North; package sent to Indians. GRANBY WEST donated gifts to underprivileged children for Christmas party at school; ALL members were present at this meeting.

SHERBROOKE : ASCOT catered for a successful banquet; donated to Lady Aberdeen Scholarship and to Quebec Service Fund; supported Lennoxville High School book, "The Lyre"; Mrs. F. Ingham gave talk on trip to Alaska and showed postcards and snapshots. BELVEDERE: Mrs. A. Coates gave a most enlightening talk on the Quebec Mosaic which she is compiling; she was assisted by Mrs. W. Pearson, and several visitors were present; donation to Maplemount Home; successful rummage sale and paper drive held. BROMPTON ROAD held a contest on Historical Events; discussion on Regional schools; sponsored a card party for UNICEF; gifts sent to Grace Christian Home; crate of oranges sent to Wales Home. LENNOXVILLE held a tea and sale of handicrafts; collected one cent for each letter in name of birthplace of the members, with proceeds for Pennies for Friendship; cancer dressings made; report of County meeting given by Mrs. S. Parker; placed a wreath at Cenotaph on

Remembrance Day. MILBY heard talk by Mr. R. Markey, President of the Association for Retarded Children, Sherbrooke; bought Coupon #367; donated to Home for Retarded at Dixville; and to UNICEF; gave a special prize to Waterville-Compton school; awarded Cornelia Orr Memorial Scholarship to pupil at Lennoxville High.

STANSTEAD : AYERS' CLIFF honoured Mrs. Robinson for 30 YEARS PERFECT ATTENDANCE! She was presented with a black Alaska ring, a gift from all the members; Mrs. R. Knight, County President, and guest at this meeting, made the presentation; roll call answered by bringing a gift for patients of Verdun Hospital. HATLEY gave a prize to Mrs. Sharman for the most original wrapped Christmas gift; roll call answered by bringing a child's gift for Dixville Home; gift of appreciation purchased for a friend; members voted in favour of holding Stanstead's Annual County School Fair; New Year's Card party held. HATLEY CENTRE answered roll call by bringing gift for retarded children; sent their "tea - money" to Northern branches; donations to Dixville School and Maplemount Home; after the meeting a Christmas party was held with exchange of gifts among members and friends. NORTH HATLEY held their annual Christmas party; gift given needy family. TOMIFOBIA held discussions on making a membership quilt, and on making Christmas stockings; discussion held on the removing of trees at a blind railway crossing, and how to take action; Mrs. Galvin gave good report on the sewing course given by Mrs. Wells; Mrs. G. Sisco reported on the quarterly County meeting; fashion show and Chinese auction held; roll call answered by donation to Dixville Home; this branch also voted for continuance of County School Fair, in operation this coming year for 50 years.

VAUDREUIL : CAVAGNAL celebrated their 40th Anniversary, HARDWOOD: Mrs. Dooley read a translation from the book "Vaudeuil Notes de Historiques" compiled by C.A. Jeannotte of Vaudreuil; it is comprised of historical dates and events in Vaudreuil-Soulangue County; Mrs. Poirier entertained with an hilarious monologue concerning a French professor of Psychology on a visit to Canada, making speeches to women's groups such as the W.I.; a recording called "Christmas Story" narrated and written by Dylan Thomas was played; donation sent to Salvation Army; gifts of cookies, candies sent to Ste Anne's Military Hospital.

IRELAND DAY AT THE A.C.W.W. CONFERENCE

(Continued)

and the horses and riders put on a magnificent performance. The hunt event was one of the favourite attractions of the show.

If we were tired, we soon forgot — we dashed back to our hotels, put on our evening gowns and took off by special buses for the Zoological Gardens, Phoenix Park, where the Welcome Party or Ceili (pronounced KLEE) was held. The marquees, with beautiful baskets of flowers hanging from the ceiling over long rows of tables groaning with all sorts of Ireland's best food, caused much "oh-ing and ah-ing". It was here we were welcomed by many of the dignitaries of the country and had a chance to meet and chat with many of the Irish ladies as well as the delegates from all over the world. Here, the theme of the Conference "Working Together" was in action.

Back we came to our hotels, tired, but with pleasant memories for a lifetime.

*Ethel M. McGibbon
(Mrs. Geo. McGibbon)*

*1st Vice-Pres., QWI
Delegate to ACWW Conference.*

CANADIAN APPLE OUTLOOK

The 1965 Canadian bumper apple crop — the second largest in history — is not likely to cause marketing problems, according to CDA Economics Branch.

The second report of the Dominion Bureau of Statistics estimates this year's commercial apple crop at more than 21.6 million bushels — 8 per cent higher than in 1964 and close to 20 per cent above the 1959-63 average. Substantial production decreases in British Columbia and, to a lesser degree, in Ontario, are more than compensated by a production record in Quebec and an increase close to one third in Nova Scotia.

The economists' predictions are mainly based on stronger demand in the United States and Britain. Lower crops are anticipated in these countries as well as in Italy, one of Britain's main suppliers.

Because of a smaller crop in British Columbia, Quebec's and Nova Scotia's share of domestic and foreign markets will be larger. Moreover, the quantity of apples going into processing should at least equal the 6.8 million bushels used last year.

Processing and export outlets ensure

that farm prices in the East will not go much below last year's.

On the other hand, requirements of the fresh, processed and export markets for B.C. apples, may raise prices in Western Canada to above last year's. The economists say that the spread between eastern and western Canada wholesale prices may be quite large at the beginning of the marketing season, but will gradually narrow as eastern apples move to the prairie markets.

In the United States' commercial areas, 1965 apple production is estimated at 4 per cent below last year's. Total North American crop is expected to amount to about 154.4 million bushels or 3 per cent smaller than that of 1964.

PLANTING TREES ON WET LAND

(Continued)

soil and are not subject to spring and fall flooding. Other advantages are, ridge-planted trees are less likely to be smothered or slowed in growth by grass and other weeds, and ridges consist of a double layer of the more fertile surface soil and therefore support faster growth. In any tree planting project, therefore, on a poorly-drained soil ridge planting should be considered. But on dry soils ridging should be avoided even though it might seem to offer a means of reducing competition from other vegetation or of concentrating soil fertility. Here moisture is the limiting factor and experiments have shown that planting in the furrow bottom gives the best results.

Of course, good results for five years is no more than a promising start. This experiment will be continued to learn what happens to the trees as they grow older and how well the ridges stand up as time passes. Good results to date, with still no slowdown in growth, or noticeable breakdown of the ridges, suggest that two, or possibly even more crops of Christmas trees might be grown on the same set of ridges. Problem land might thus be made to yield worthwhile income.

WILDLIFE AND THE FARM

(Continued)

have initiated a "Basic Firearms Safety Training Programme". Undoubtedly if everyone took this course or one like it, and then practised what was taught about handling their firearms, there would be no accidents.

Unfortunately, not every hunter is a member of a good club, and the trespassers you meet are probably not members. Many of the clubs are demonstrating that their members are



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thoughtful, well-behaved, well-trained people that understand the farmer's point of view and therefore have good farmer-hunter relations. Possibly as a result of this, the government will some day agree to adopt measures that would assure the farmer that anyone possessing a licence has the qualities the best fish and game clubs demand of their members.

Many member associations of the Federation take the problems of wildlife and farmer-hunter relations very seriously. As the number of hunters increase, more and more hunting areas will be needed. Hunting on farm land will be a solution to the crisis, but by that time wildlife should be considered a cash crop and the people buying the dangerous, and more thoughtful.

THE FARM WOODLOT

(Continued)

ably by lump sum rather than by scale. The amount is usually set by the purchaser on a "take-it-or-leave-it" basis.

Few owners have attempted to protect or improve the condition of the woodlot. Many express an interest but have done little. Improvements have usually been limited to the removal of dead and diseased trees as part of annual firewood cuts. Thinning of overcrowded stands, and improvement or selection cutting, is less frequent than high-grading. Grazing of woodlots is common. Damage caused by this practice, particularly in sugar bushes, has been serious.

Most owners agree that their management could be improved. They fail to make these improvements, often because of a lack of time or of technical know-how. Some cite a general lack of interest in the woodlot or in wood production. Others feel that the time and expense involved would fail to yield a profit.

The 400 owners interviewed have reforested a total of 75 acres of land; only 19 have planted more than one acre. Few owners are aware that assistance for reforestation, including free trees, is available from the provincial Department of Lands and Forests.

Only one owner in three has had any contact with forestry information. The mass media — radio, television and the farm papers — have provided most of the limited contact that has been established. One owner in 20 has consulted professional forestry personnel. Field demonstrations at Macdonald College, and visits by government foresters, have provided the usual occasion for this contact.

Various groups of owners, either because of differences in their general background, available resources, managerial capabilities, or other factors, place widely divergent values on their woodlots. Certain attitudes and practices are characteristic of particular groups of owners. Some of these relationships appear obvious; others are more subtle and of considerable significance.

The owner's occupation, for example, was found to have some bearing on his management of his woodlot. Farmers, although their woodlots are frequently smaller than those of non-farmers, are more likely to harvest wood or maple products either for their own use or for sale. The non-farmer is more interested in less tangible benefits such as recreation or in speculative or investment values. He

is more likely to reforest his land. He also clear-cuts more frequently, and is more inclined to approach professional forestry sources for management advice.

Length of tenure is another factor related to the degree of management exercised by the owner. Those who have acquired their property recently generally place less value on the productive aspect of the woodlot than the long-established owners. The latter most often consider the woodlot an integral part of their holdings. They harvest more frequently but are less inclined to reforest.

As expected, owners with higher incomes value their forest land more for recreational and other uses than for the products grown. Few of the high income owners harvest firewood; more cut sawlogs. The low income owner is less likely to reforest, or to attempt improvements.

Comparisons such as these show how various groups of owners might be expected to manage their forest land. They also indicate what steps can be taken, either by the owner, or by some outside agency, so as to make sound management attractive to the owners.

Among other things the study indicated that there are many owners, particularly in Huntingdon, who have the required combination of natural and economic resources, and the necessary entrepreneurial ability and interests to develop a profitable enterprise based on the production of wood or maple products. One of the required elements commonly lacking is the knowledge of sound forestry principles and techniques to achieve this improved level of management. The information developed in this study should enable various agencies such as the provincial Department of Lands and Forests, and the Department of Woodlot Management at Macdonald College to help fill this gap.

EDITORIAL (Continued)

hears of the crisis and need for more professionally trained resource people. "ARDA" is frustrated by lack of trained community development officers" states a February 1965 MacLean's article. "For Canada, in particular, where is the hard core of the 20,000 planners we will need by 1990? We have been characterized... as the 'undirected society,'" says the Canadian Audubon. The Canadian Council of Resource Ministers bulletin of December stated "Council acknowledges the fact that the availability of skilled and experienced resource specialists and administrators is the largest single problem facing the order-

ly development of Canada's renewable resources."

Where are these resource people to be trained in regional resource planning and land-use but in Canadian agricultural and forestry schools? If they are to be properly trained they need to be exposed to both sides of the Canadian renewable resources coin. The differences are not great, the advantages would be many. The two disciplines have a common base in mathematics, physics, chemistry, biology, geography and English. Student instruction in land-use principles from an agricultural as well as from a forestry viewpoint is essential if proper planning and use of our land-based resources are to occur in the next half century. The advantages to the economy of training students by exposing them to different resource specialists in both disciplines would be of inestimable value from a resource point-of-view.

We now need a much broader grasp of the principles of land-use as well as a keen awareness of the interdependence of renewable natural resources in present day regional planning if intelligent and rational decisions are to be made with respect to the future use of Canada's land resources.

MAPLE RESEARCH

(Continued)

were kept from April 14th to 28th, and the results were as follows (Table 2):

TABLE 2

Sap yields in gallons per taphole from April 14-28 in rinse, ream, and fresh tap test:

Treatment	Gallons of sap per tap
Unchanged	0.4
Rinsed	0.7
Reamed	0.9
Fresh tap	3.5

When the test ended the new taps were still running well compared with the others, but by this time sap spoiled rapidly because of warm weather. Another interesting point is that the average yield per new tap, including only the period April 14 to 28, was higher than from PFA treated taps for the whole season. Very roughly it seems that rinsing or reaming all tapholes around April 14th would have doubled the yield, while new taps all around would have multiplied yield by about nine. New taps would be no more, perhaps less, work than reaming or rinsing. The extra tapping would double the amount of injury to the trees so perhaps it would be safer and simpler to rely on taphole sanitization to keep sap going.

Power Tapping

In 1965 a battery-powered electric

tree tapper was tried for the first time with excellent results. The equipment consists of a portable battery carried in a haversack to power the conventional type electric drill. The unit gave excellent service. Overnight charging of the battery permits all day tapping. Taps can be easily made anywhere from one to seven feet above the ground, or snow. This is a real advantage in tapping for pipeline. The tool is a good investment for larger operators or anyone who wishes to get gravity flow by grading the tapholes.

SWINE NUTRITION

(Continued)

the absorption of certain antibiotics. This problem is of special significance in the poultry industry where the rations used may be particularly high in calcium and where antibiotics are so routinely used in the control or eradication of various diseases.

In swine nutrition, work both at Florida and Macdonald College has illustrated that superior growth and/or feed efficiency can be accomplished with levels of ration calcium which are considerably below current NRC recommendations. The published requirements for ration calcium have been determined, for the greater part, on the basis of amounts required for normal bone growth and development. However, because of the role of calcium as an antagonist in the utilization of certain micronutrients, is it possible that optimum levels of calcium for bone development are not necessarily optimum for the growth and development of other tissues? If this were true, the inclusion of calcium at levels below current recommendations in rations for animals destined to be marketed at a relatively early age (i.e., hogs and steers) might have some beneficial effects. The objective might be to obtain greater and more efficient gains at the expense of maximum bone strength, without of course interfering with the mobility of such animals during their restricted life span.

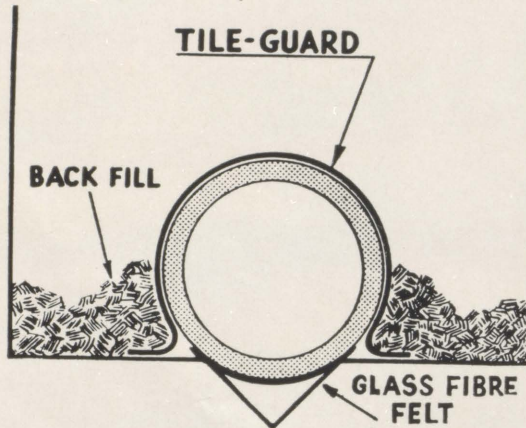
In a similar vein, it has been suggested that excessive amounts of iron affect phosphorus utilization and excessive amounts of carotene affect the action of vitamin D in preventing rickets.

The necessity of maintaining an optimum ratio between the energy and protein content of rations is well established. In addition, it is known that the consumption of low protein rations will result in poor retention and utilization of riboflavin, and probably the utilization of carotene will also be impaired.

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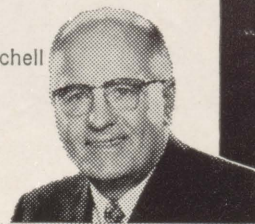
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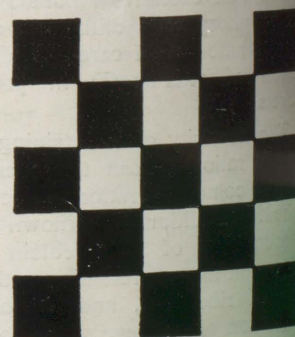
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